

REMARKS

Claims 1-20 are pending in this application. By this Amendment, claims 4-5 and 10-11 are amended for antecedence. Claim 20 is newly added. Support for new claim 20 can be found in the original specification at least at, for example, paragraph [0046]. No new matter is added.

In view of the following remarks, reconsideration and allowance of claims 1-20 are respectfully requested.

35 U.S.C. §103(a) Rejections

Claims 1-3

In the last Office Action, claims 1-3 were rejected under 35 U.S.C. §103(a) as allegedly having been obvious over Aldrich (U.S. Patent No. 6,008,164) in view of Deckman (U.S. Patent Application Publication No. 2003/0158055). Applicants respectfully traverse this rejection.

The lubricant base oil of claim 1 consists essentially of a normal paraffin and an isoparaffin, and satisfies the requirements: (a) an average carbon number N_c in one molecule is not less than 29 but not more than 35; (b) an average branch number N_b in one molecule, which is derived from a ratio of CH_3 carbon to total carbon determined by ^{13}C -NMR analysis and the average carbon number N_c in one molecule, is not more than $(0.2N_c - 3.1)$ but not less than 1.5; and (c) a viscosity index is 145-170 and a kinematic viscosity at 40°C is 17-25 mm^2/s .

The Patent Office alleges that Aldrich describes all of the features of claim 1 except above requirements (a) and (b) and the kinematic viscosity at 40°C being 17-25 mm^2/s , as recited in claim 1. The Patent Office alleges that Aldrich describes ranges that overlap or lie inside the ranges recited in above requirements (a) and (b) of claim 1 and that Deckman

describes the kinematic viscosity recited in claim 1. However, for at least the following reasons, the combination of Aldrich and Deckman would not have rendered obvious claim 1.

Neither Aldrich nor Deckman describe requirements (a) and (b) recited in claim 1. Further, even if Aldrich or Deckman describe a range that overlaps with the ranges recited in claim 1 as the Patent Office alleges, the combination of Aldrich and Deckman would not have rendered obvious claim 1 in view of the unexpected results of requirements (a) and (b) recited in claim 1.

The above features (a)-(b) recited in claim 1 allow the lubricant base oil to have a high viscosity and a low pour point. Mr. Kobayashi's Rule 132 Declaration (Declaration) shows, by experiment, that the claim range of Nc and Nb are required to allow for the recited viscosity index and to lower the temperature of the pour point.

As shown in Table A of the Declaration, if one of ordinary skill in the art were to have used Nc and Nb values that are outside of the ranges recited in claim 1, one would not have achieved the recited viscosity index and kinematic viscosity recited in claim 1. In other words, having (a) an average carbon number Nc in one molecule of not less than 29 but not more than 35 and (b) an average branch number Nb in one molecule, which is derived from a ratio of CH₃ carbon to total carbon determined by ¹³C-NMR analysis and the average carbon number Nc in one molecule, of not more than (0.2Nc - 3.1) but not less than 1.5, is critical to achieving (c) a viscosity index is 145-170 and a kinematic viscosity at 40°C is 17-25 mm²/s, as recited in claim 1.

The combination of Aldrich and Deckman do not describe, or provide any reason or rationale for one of ordinary skill in the art to have come to, above features (a)-(b) recited in claim 1.

Regarding the viscosity index, Aldrich describes that a viscosity index of the base oil is at least about 120. See claim 4 of Aldrich. Aldrich does not describe any specific viscosity

index above the 120 threshold. Deckman also does not describe a lubricant base oil having a viscosity index in the range of 145-170. Deckman describes a maximum viscosity index of the base oil to be 138. See Table 3 of Deckman. The highest viscosity index of Deckman is lower than, and outside, the range of 145-170 recited in claim 1.

Regarding the kinematic viscosity, the Patent Office admits that Aldrich does not describe a kinematic viscosity at 40°C that is 17-25 mm²/s. Deckman does not remedy this deficiency of Aldrich. Deckman describes a paraffinic oil that is a hydrotreated oil having a viscosity of approximately 22.7 cSt at 40°C. See paragraph [0107] of Deckman. Deckman describes that the hydrotreated oil having a viscosity of 22.7 cSt at 40°C also has a viscosity index of 116. See Table 3 of Deckman. Thus, even if the hydrotreated oil having a viscosity of approximately 22.7 cSt at 40°C were to have been combined with Aldrich, the resulting base oil would have had a viscosity index of 116, which is below the claim range of 145-170 recited in claim 1.

In view of the above, the combination of Aldrich and Deckman would not have rendered obvious claim 1. Claims 2-3 depend from claim 1. For at least their respective dependency, and for the additional features recited, the combination of Aldrich and Deckman also would not have rendered obvious claims 2-3.

In view of the above, withdrawal of the rejection is respectfully requested.

Claims 4-19

Claims 4-19 were rejected under 35 U.S.C. §103(a) as allegedly having been obvious over Aldrich in view of Deckman and further in view of Wittenbrink (U.S. Patent No. 6,506,297). Applicants respectfully traverse this rejection.

Wittenbrink does not remedy the above described deficiencies of Aldrich and Deckman. Wittenbrink does not describe, or provide any reason or rationale for one of ordinary skill in

the art to have come to, features (a)-(c), as recited in claim 1. Thus, the combination of Aldrich, Deckman and Wittenbrink would not have rendered obvious claim 1.

Claims 4-19 depend from claim 1. For at least their respective dependency, and for the additional features recited, the combination of Aldrich, Deckman and Wittenbrink also would not have rendered obvious claims 4-19.

In view of the above, withdrawal of the rejection is respectfully requested.

New Claim

New claim 20 (which depends from claim 1) requires, among other features, that the lubricant base oil further satisfies (d) a pour point of the lubricant base oil is between -10°C to -40°C

None of the cited references, alone or in combination, describe or render obvious this feature of claim 20.

Concluding Remarks

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-20 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



James A. Oliff
Registration No. 27,075

Andrew B. Whitehead
Registration No. 61,989

JAO:ABW/abw

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OLIFF & BERRIDGE, PLC
P.O. Box 320850
Alexandria, Virginia 22320-4850
Telephone: (703) 836-6400

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